

0303.ST25
SEQUENCE LISTING

<110> Gurney, Mark E.
Abraham, Irene

<120> Transgenic Mouse Model Of Human Neurodegenerative Disease

<130> PHRM0303

<150> 60/177,319

<151> 2000-01-21

<160> 15

<170> PatentIn version 3.0

<210> 1

<211> 1152

<212> DNA

<213> Homo sapiens

<400> 1

atggctgagc cccgccagga gttcgaagtg atggaagatc acgctgggac gtacgggttg 60
ggggacagga aagatcaggg gggctacacc atgcaccaag accaagaggg tgacacggac 120
gctggcctga aagctgaaga agcaggcatt ggagacaccc ccagcctgga agacgaagct 180
gctggtcacg tgaccaagc tcgcatggtc agtaaaagca aagacgggac tggaaagcgat 240
gacaaaaaag ccaagggggc tgatggtaaa acgaagatcg ccacaccgcg gggagcagcc 300
cctccaggcc agaagggcca ggccaacgcc accaggattc cagcaaaaac cccgcccgct 360
ccaaagacac caccagctc tgggtgaacct ccaaaatcag gggatcgag cggctacagc 420
agccccggct cccagggcac tcccggcagc cgctcccga ccccgctcct tccaaccca 480
cccacccggg agccaagaa ggtggcagtg gtccgtactc caccaagtc gccgtcttcc 540
gccaagagcc gcctgcagac agcccccgct cccatgccag acctgaagaa tgtcaagtec 600
aagatcggct cactgagaa cctgaagcac cagccgggag gcggaaggt gcagataatt 660
aataagaagc tggatcttag caacgtccag tccaagtgtg gctcaaagga taatatcaaa 720
cacgtcccgg gaggcggcag tgtgcaaata gtctacaaac cagttgacct gagcaaggtg 780
acctccaagt gtggctcatt aggcaacatc catcataaac caggaggtgg ccaggtggaa 840
gtaaaatctg agaagcttga cttcaaggac agagtccagt cgaagattgg gtccctggac 900
aatatcacc acgtccctgg cggaggaaat aaaaagattg aaaccacaa gctgaccttc 960
cgcgagaacg ccaaagccaa gacagaccac ggggcggaga tcgtgtacaa gtcgccagtg 1020
gtgtctgggg acacgtctcc acggcatctc agcaatgtct cctccaccgg cagcatcgac 1080
atggtagact cgcccagct cgccacgcta gctgacgagg tgtctgcctc cctggccaag 1140
cagggtttgt ga 1152

<210> 2

<211> 9990

<212> DNA
 <213> Mus musculus

<400> 2

```

ggcgccgcg acggatccaa aggcagcaaa aaggcagaga ggggtgatact gggcctggct    60
taagcatttg aaacttcaaa gctcaccccc aattacacac ttcttccaac aagtccacac    120
ctcctaatta gtgccactct ctgtgggcct acggagagta ttttcattct aactaccaca    180
gttgctgagg aatttaatta aaactacaac cttatcccaa cctagatctt tcagcctttc    240
tgtactacca gagaggggtc atacagcatt gttgtgactc ccattataac ttaaagggaa    300
gctcacacaa agtccagagc cctccatacc ctgcaaatga agaagtacgt tctcaaatcc    360
cttgagagcag ggccccactt tggcggcaca aactttaatt tctagacgga acggcatctc    420
tacagaaaga aaagccatgg tatctgcatg ataagtctga aaaggacctg ggcaaactctg    480
cagctgacaa ttccagccat tgctgccact gcgagaaaac cctgctgatg gcagcattgt    540
cagcatcatc tcctccagga acaccggcca tcgagccacg aggacaattg ctgctgctgg    600
agtcaattca tctgccagcc acatcatact ctgggaccgt cactaaccag atccaagcag    660
ccttgaggaa gcatgtcttc tgggtgtgac tgatcccaag ggctgacaac aaggtcctca    720
cagaggcatc ttatgtcaac ctatctacca tgcacggtat aagacacatt ctctctgtg    780
ctgtgtggac actgccatca cacgcaacag aaaggaaact cactcactgt gtctgatgtg    840
gtggtgcttg ttaggggagt tctgggcatg tatggcacca tcgcccatga ggactcctgt    900
ggggtcatgc ccactctact cctctagaga ccatgaagag atggagaggg aagagcaagc    960
acagatgaca ggctagaact aaagaggagt gtcagggtgag cggacctgaa ctcacggctg   1020
ctcagcctga agtgggtgtg ccatctgcat ctggtatctg gtctgaaggt gcgtggatac   1080
cctctgtgcc cgtccagaag tttcctactg aagacagaaa tgctgtcca gtcatggaag   1140
aatgattggc agttcccact tctcagacca ctgaatgggt cagaacaact actgggtgac   1200
cctaaggtat tcttcagcag atatgtgtga aaaatggaaa gaagatgggt agaaataaac   1260
ggtttttagag gaaaaaaact ctcacaaaga tattataaaa agaaaagagc tttattattg   1320
agcaagcatt caaccagaat gcacaccaca ggcagtctgc taaggagtg tgacagacag   1380
aggagtgtcg ccctttatgt gagccagtag ataaggatgc tgtgcgtgtt tttagtaact   1440
ggtcttcagc ttgacagcac catttatcac atggtttaac ctaaattcat ctggcgaatg   1500
aggctgtcac gtacttctct attagcttta tctgaaatga gacaagcttc acatgttcac   1560
ggcaggaggt aatcctgctg cttagagaac agggatccat caagccaggc tccttctccc   1620
accaacacgg gtggttgaag agctatctct ccctgggtgtg tgtgtttcag agatggctcc   1680
cagggtttttg gtttggtttg aattgggttt tggttttctt actctagccc agactagctt   1740
ggaattctct ggaaagctgc aacggggagc tcaggttcag tgagagatcc tgtctcaaaa   1800
agcagggtga gaagtgattg aggaagacac cccagtgtta acctctgacc tccatatgtg   1860

```

catgcatgga	cacgcatgga	tacacatata	cacacacaca	cacacacaca	cacacacaca	1920
cacacacaca	cacacacaaa	accagaaaga	atgaacgccc	ccctcccagc	ttgtttacag	1980
tagatacaga	gcactcgtaa	aacatggggt	gtaaactgaa	tgctgagagt	aacttagatg	2040
agtaattaag	gaaggaagag	gaaagaaacc	aggaaaccga	gagcaagtga	ctggaagatc	2100
gttaggcaat	ctccacaccc	tgctcgttga	agttggaatg	ctttcttctt	ctgcctcttg	2160
aagttcttta	gaagtgctag	gatttcacaa	ttagtctgtg	gtggtttcaa	tatgcttcac	2220
ccgtggtaag	tggcactatt	aggaaacgtg	tccttggtga	aggaagggtg	tcactgcata	2280
ggcgggcttt	gaggtgtctt	ccagtgtca	agtcctccc	agtgaagag	aggcagacac	2340
ctgttgctg	cagaagacag	tctcctgctg	cctttgaatc	aagatgtaga	actcaagccc	2400
catgtctgcc	tgaacctctg	aaactgtaag	ccagcccaa	ttaaattgtt	tctttcacia	2460
gagttgcctt	ggtcatggtg	tctgttcaca	gcaataaaac	cctaactaag	acagtcttaa	2520
atcaatgaaa	agaccttta	ttattcattg	aacaaacacc	atcttctgtg	atcaagttgg	2580
cagtgcactag	taagcaacta	tagttctgca	ccaggacct	ttttggagaa	atataccgat	2640
ccaagcatgt	tggcatctag	attccaaagc	caagacacct	gccacacct	tccatgcctt	2700
gggttctctg	cagggcatct	ggcttcgggg	atgtgtattc	caggcaccca	ctggaatgca	2760
tggaaacaat	taaaatagca	tcatagaaga	cattgcaatc	ctaggagaa	actataccaa	2820
aactcagaac	tatactggt	taagtgtaga	aaagacgaaa	ggaataaaac	caggaatatt	2880
ttaaaatatt	tttattgagc	tcattgtgcat	gggtattttg	cctgaaagta	tgtctgtgta	2940
ccacatgcat	ggctggctcc	tgcagaggcc	aaaagagagc	atcagatctc	ctagagctgg	3000
agtttcagaa	gtttgtgagc	taccacatgg	gtgctggaaa	caaaaccag	gacatctgga	3060
agagcagcca	gtgttcttaa	ctactgagcc	atcactcagg	tcccaccatg	aatgtttttc	3120
tttattcttc	tctatatttt	ctaattgttt	tattggaaat	atacaacttt	tgccacacat	3180
aacaaatgac	caaagaaatg	aggtgagagg	ggcagctgtt	caaatgctgc	ctgggaaggc	3240
ttggccagcc	ctggcttggc	tgccctggc	tcagctggcc	ctgacttggc	tgtcccgggtg	3300
ccagctgtca	tctactgctt	cataataagc	tgcactttgg	gctgaagggg	tggctcagcc	3360
tttaaaggct	aggctcataa	ccaaagtaag	ttgcatttta	tttgactag	gttgaagggg	3420
gatctgaaac	ttgctgtcaa	tgttataaaa	cattttatct	tcaaatttgg	tataggggtc	3480
atagacaaa	ggttctataa	acccagaac	agcaccactc	cctagaaata	agcaccata	3540
caagagccta	tgggacactt	tatagccaaa	caaaaagcta	tgtttgaaac	ttcctttaca	3600
agggcctgag	tcccattcat	aagggaaagga	gccccacttc	gtaataacac	cccactggtg	3660
acatttgaag	gggacacatt	caaactgtaa	caccatctta	tatcatttgc	acattagggg	3720
caaactgtgc	cacgttgctca	tttctaagaa	gacagaagtt	gtcaagcctg	tgctttgagc	3780

0303.ST25

cacaagtgtg acaacctact ttcaggcaag tcgctacttc cctaagactc taccccaata 3840
ggcctggggt ctggaatgtg tttaacacag atgcaggcctt ctgccttagt gcaggcttga 3900
gttctcatgt ccctctctct ttagctttcc gtctcaaggc gcctctcctt agcagaaaaa 3960
atcagaggca taaagcatac atcaggggga agccagagtt ttcagaggga gttttgtgat 4020
ggccttttca gagcattctt gtcaagacta gtttgccctg ttctctttat taaatgaaag 4080
aaaaataatg cagtgttgca aattagcttt ggtaatggct ccaaccattg tcaggttcac 4140
agtctcattc cgccattcaa aacaacaaac ccaccacact ctctatgcag tgccgtaact 4200
cagaacagcc accaaacagc agaaagaggc tccccgactc ctctcagcct tgccataaac 4260
tcgccggcca catgcttatt ttaaattatt taaattatgt cgtttctccc aacaatgacc 4320
tccaagtgc ttggttgaca ggcttatacc attaagccga ggcttgcata gcaacgataa 4380
ccaggtaggc tattattata accaggtagc tgccgagcta ctggctcggtc cccttttgtc 4440
tctagaaacc tctcaacccc cacccaaaaa agcttttatt gccacttcct agtgggtaga 4500
gagcagtcag ccaatagata tttgattctt tgaggaaaaa gctgagtttt gatgtctttt 4560
aatcaagcct ttcagagtc ctctgtgggg gaggccaggt ggaagcggg tggaagctg 4620
gtcccttacc taagctaate tagacacct cccactctc ccctgccctc ttgacagatg 4680
cagtcacct gatcacaatg agtattctct gaggcaggaa ggcaaggctc tggaagatgg 4740
tcaatgcctt cattaagaac ccagagtaaa ggtcaagcag acaccagcac cgctgaaatc 4800
taatttctact gtaattgaat catctcagcc aaaggctgta ttttcagcc ctctcgtggc 4860
ctcttcccca acaactgtca acaactgtgt gagcctaccc atgtatgcgc gctcacacac 4920
acacacacac acacacacac acacacacac aggggtggggg gacacaatga ttacacaaga 4980
gtacttaata aacaactata attctcctgg ctcgatagt tcttaccac cctctcctcc 5040
tgatccgga tcttaatact ggatacaaat attaatcca aaccaatct tgtgtctgtt 5100
aatgatcttc agtgtctcgc cctcagcaag aggacaggat attatgtttt ccctgtgatt 5160
tatgacctct tctgtctcag tatcggcagc aatttattta catggctttg gagtgtgtta 5220
tatgtgtagt atggacatga ggggtcatgt caacctatgt gtggaggcca gaggtcaatg 5280
tcatgtcttc ccaatcact gccagtggt cctcggattc caaactcagg tctcagct 5340
tggaactga gccagtccc cagctcctaa cctcccctg ttttaaaaag gtctcattat 5400
gttgccagg tcagccttga acttgagagt ctctgactg caggctttca cctgtccaag 5460
tcagcaggca tcttgaacaa gaacatcatt tctttaagc tgtttcaggc tgtgtttggt 5520
gggagctgtt aaatgcagtg cattttttcc tttggacaca ataaaagaaa aaagtgatta 5580
aatgagttgg gtgtggtggt gcgagctac aatcctagaa ctcaggagat tgaggagaa 5640
gcattgctct gagtttgagg tcagcttaaa ttacttagta ggaacaccag gccaaattgg 5700
gctatgggat tgtctccaaa gataaagaaa aaagggaagg agagaaaaga aaaagaaagg 5760

0303.ST25

ttgctgtgta gaccagacag gcctcaaatt tgtggcaatc ctccctgcat cttcccagaa 7740
 tgccctggta caggcataaa ccaccgtgcc cagcagtaaa acaatctggt gaggtattat 7800
 tagtcgtgtg ctgtgaccca gaaaccccac tcctggcaat ttactgggaa ggaacaaaca 7860
 aagggctagg ggagccatat ggctgcagt tagagaaaat tagatccaac tgaaaaatca 7920
 acctaaaggt gtaaaagcca agcagttaag aaactgacaa gctcatgatg gaagccgagg 7980
 ccatcgtgaa cactcttcat tttaggcccc acgtatcact ggggacaact gagagtcaaa 8040
 gtacaggtaa ggagaccaag gcttttcagg actcaggctg tctcagtga aagcccagaa 8100
 gagcagtaat tgaaagagct cagacgatgt gtctgatctc ctctgtttgt ttgttgctgt 8160
 attatttcca ctaacttatt tgggaggaaa aaaaacagtt cacaggcttc ttttcttgaa 8220
 atactgggga ttgctgggat cgaacccagg gataggtttt tagtttctaa aataacatag 8280
 atcatgccct gtttgctttt tggaatatgt ttgcgctgcc cttattttca tgttcaata 8340
 ctgctccatt ttgcgtgact ctttagtatt ggtttgatga tttgcatatt agattagatt 8400
 gtatttcagt tctcagactt atttatcaat tctagttttc tctttttggt gttttaaagg 8460
 actcctgagt atatttcaga actgaacat ttcaaccgag ctgaagcatt ctgccttcct 8520
 agtggtacct cgactatcag gtgaactttg aaccaggatg gctgagcccc gccaggagtt 8580
 cgaagtgatg gaagatcacg ctgggacgta cgggttgggg gacaggaaag atcagggggg 8640
 ctacaccatg caccaagacc aagaggtgta cacggacgct ggctgaaag ctgaagaagc 8700
 aggcattgga gacaccccca gcctggaaga cgaagctgct ggtcacgtga cccaagctcg 8760
 catggtcagt aaaagcaaag acgggactgg aagcgatgac aaaaaagcca agggggctga 8820
 tggtaaaacg aagatcgcca caccgcgggg agcagcccct ccaggccaga agggccaggc 8880
 caacgccacc aggattccag caaaaacccc gcccgctcca aagacaccac ccagctctgg 8940
 tgaacctcca aaatcagggg atcgacggg ctacagcagc cccggctccc caggcactcc 9000
 cggcagccgc tccgcacccc cgtcccttcc aacccacccc acccgggagc ccaagaagg 9060
 ggcagtgtc cgtactccac ccaagtcgcc gtcttcgcc aagagccgc tgcagacagc 9120
 ccccgctccc atgccagacc tgaagaatgt caagtccaag atcggtcca ctgagaacct 9180
 gaagcaccag cgggaggcg ggaaggtgca gataattaat aagaagctgg atcttagcaa 9240
 cgtccagtcc aagtgtggct caaaggataa tatcaaacac gtcccgggag gcggcagtgt 9300
 gcaaatagtc tacaaccag ttgacctgag caagtgacc tccaagtgtg gctcattagg 9360
 caacatccat cataaaccag gaggtggcca ggtggaagta aaatctgaga agcttgactt 9420
 caaggacaga gtccagtcga agattgggtc cctggacaat atcaccacg tccctggcgg 9480
 aggaaataaa aagattgaaa ccacaagct gaccttcgcg gagaacgcca aagccaagac 9540
 agaccacggg gcggagatcg tgtacaagtc gccagtgggtg tctggggaca cgtctccacg 9600
 gcatctcagc aatgtctcct ccaccggcag catcgacatg gtagactcgc ccagctcgc 9660

0303.ST25

cacgctagct gacgaggtgt ctgcctccct ggccaagcag ggtttgtgat caggcccctg 9720
 gggcggtcaa taattgtgga gaggagagaa tgagagagtg tggaaaaaaa aagaataatg 9780
 acccggtccc cgccctctgc ccccgctgc tcctcgagc tgggaattc ggatccagat 9840
 cttattaaag cagaacttgt ttattgcagc ttataatggt taaaaataa gcaatagcat 9900
 cacaaatttc acaataaag ctttttttc actgcattct agttgtggtt tgtccaaact 9960
 catcaatgta tcttatcatg tctggtcgac 9990

<210> 3
 <211> 25
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 3
 agtaattgaa agagctcaga cgatg 25

<210> 4
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 4
 tgtcaccctc ttggtcttgg tgc 23

<210> 5
 <211> 22
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 5
 gtactccacc caagtcgccg tc 22

<210> 6
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 6
 gcagcagcat cgaagcttct cag 23

<210> 7
 <211> 48
 <212> DNA

<213> Artificial

<220>

<223> Missense

<400> 7

gcagcagcat cgaagcttct cagattttac ttccatctgg ccacctcc 48

<210> 8

<211> 20

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 8

ccgccaagag cgcctgcag 20

<210> 9

<211> 61

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 9

gcagcagcat cgaagcttct cagattttac ttccacctgg ccacctccta gtttatgatg 60

g 61

<210> 10

<211> 1152

<212> DNA

<213> Homo sapiens

<400> 10

atggctgagc cccgccagga gttcgaagtg atggaagatc acgctgggac gtacgggttg 60

ggggacagga aagatcaggg gggctacacc atgcaccaag accaagaggg tgacacggac 120

gctggcctga aagctgaaga agcaggcatt ggagacaccc ccagcctgga agacgaagct 180

gctggtcacg tgacccaagc tcgcatggtc agtaaaagca aagacgggac tggaagcgat 240

gacaaaaaag ccaagggggc tgatggtaaa acgaagatcg ccacaccgcg gggagcagcc 300

cctccaggcc agaagggcca ggccaacgcc accaggattc cagcaaaaac cccgcccgt 360

ccaaagacac caccagctc tggatgaacct ccaaaatcag gggatcgag cggtacagc 420

agccccggct cccaggcac tcccggcagc cgctcccga cccgctccct tccaaccca 480

cccacccggg agccaagaa ggtggcagtg gtccgtactc caccaagtc gccgtcttcc 540

gccaagagcc gcctgcagac agccccgtg cccatgccag acctgaagaa tgtcaagtcc 600

aagatcggct cactgagaa cctgaagcac cagccgggag gcgggaaggt gcagataatt 660

aataagaagc tggatcttag caacgtccag tccaagtgtg gctcaaagga taatatcaaa 720

0303.ST25

cacgtcccgg gaggcggcag tgtgcaaata gtctacaaac cagttgacct gagcaaggtg 780
 acctccaagt gtggctcatt aggcaacatc catcataaac caggaggtgg ccagatggaa 840
 gtaaaatctg agaagcttga cttcaaggac agagtccagt cgaagattgg gtccctggac 900
 aatatcacc acgtccctgg cggaggaaat aaaaagattg aaaccacaa gctgaccttc 960
 cgcgagaacg ccaaagccaa gacagaccac ggggcggaga tcgtgtacaa gtcgccagtg 1020
 gtgtctgggg acacgtctcc acggcatctc agcaatgtct cctccaccgg cagcatcgac 1080
 atggtagact cgcccagct cgccacgcta gctgacgagg tgtctgcctc cctggccaag 1140
 cagggtttgt ga 1152

<210> 11
 <211> 1152
 <212> DNA
 <213> Homo sapiens

<400> 11
 atggctgagc cccgccagga gttcgaagtg atggaagatc acgctgggac gtacggggtg 60
 ggggacagga aagatcaggg gggctacacc atgcaccaag accaagaggg tgacacggac 120
 gctggcctga aagctgaaga agcaggcatt ggagacaccc ccagcctgga agacgaagct 180
 gctggtcacg tgaccaagc tcgcatggtc agtaaaagca aagacgggac tggaagcgat 240
 gacaaaaaag ccaagggggc tgatggtaaa acgaagatcg ccacaccgag gggagcagcc 300
 cctccaggcc agaagggcca ggccaacgcc accaggattc cagcaaaaac cccgcccgtc 360
 ccaaagacac caccagctc tggtaacct ccaaatcag gggatcgag cggctacagc 420
 agccccggct ccccaggcac tcccggcagc cgtccccga ccccgctcct tccaaccca 480
 cccaccggg agccaagaa ggtggcagtg gtccgtactc caccgaagtc gccgtcttc 540
 gccaaagagc gcctgcagac agccccgtg cccatgccag acctgaagaa tgtcaagtc 600
 aagatcggct cactgagaa cctgaagcac cagccgggag gcgggaaggt gcagataatt 660
 aataagaagc tggatcttag caacgtccag tccaagtgtg gctcaaagga taatatcaaa 720
 cacgtcccgg gaggcggcag tgtgcaaata gtctacaaac cagttgacct gagcaaggtg 780
 acctccaagt gtggctcatt aggcaacatc catcataaac taggaggtgg ccaggtggaa 840
 gtaaaatctg agaagcttga cttcaaggac agagtccagt cgaagattgg gtccctggac 900
 aatatcacc acgtccctgg cggaggaaat aaaaagattg aaaccacaa gctgaccttc 960
 cgcgagaacg ccaaagccaa gacagaccac ggggcggaga tcgtgtacaa gtcgccagtg 1020
 gtgtctgggg acacgtctcc acggcatctc agcaatgtct cctccaccgg cagcatcgac 1080
 atggtagact cgcccagct cgccacgcta gctgacgagg tgtctgcctc cctggccaag 1140
 cagggtttgt ga 1152

<210> 12

<211> 19
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 12
 gcattggaga cccccccag 19

<210> 13
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 13
 gcttttactg accatgcgag c 21

<210> 14
 <211> 25
 <212> DNA
 <213> Artificial

<220>
 <223> Primer

<400> 14
 ctggaagacg aagctgctgg tcacg 25

<210> 15
 <211> 9990
 <212> DNA
 <213> Artificial

<220>
 <223> PrP/tau transgene construct

<400> 15
 ggcgggccgcg acggatccaa aggcagcaaa aaggcagaga gggtgatact gggcctggct 60
 taagcatttg aaacttcaaa gctcaccccc aattacacac ttcttccaac aagtccacac 120
 ctctaatta gtgccactct ctgtgggcct acggagagta ttttcattct aactaccaca 180
 gttgctgagg aatttaatta aaactacaac cttatcccaa cctagatctt tcagcctttc 240
 tgtactacca gagaggggtc atacagcatt gttgtgactc ccattataac ttaaagggaa 300
 gctcacacaa agtccagagc cctccatacc ctgcaaatga agaagtacgt tctcaaatcc 360
 cttggagcag ggccccactt tggcggcaca aactttaatt tctagacgga acggcatctc 420
 tacagaaaga aaagccatgg tatctgcatg ataagtctga aaaggacctg ggcaaactctg 480
 cagctgacaa ttccagccat tgctgccact gcgagaaaac cctgctgatg gcagcattgt 540
 cagcatcatc tcctccagga acaccggcca tcgagccacg aggacaattg ctgctgctgg 600
 agtcaattca tctgccagcc acatcatact ctgggaccgt cactaaccag atccaagcag 660

ccttgaggaa gcatgtcttc tgggtgtgac tgatcccaag ggctgacaac aaggctcctca 720
cagaggcatc ttatgtcaac ctatctacca tgcacggtat aagacacatt ctcctctgtg 780
ctgtgtggac actgccatca cagcaacag aaaggaaact cactcactgt gtctgatgtg 840
gtggtgcttg ttaggggagt tctgggcatg tatggcacca tcgcccataa ggactcctgt 900
ggggtcatgc cactctact cctctagaga ccatgaagag atggagaggg aagagcaagc 960
acagatgaca ggctagaact aaagaggagt gtcagggtgag cggacctgaa ctcacggctg 1020
ctcagcctga agtgggtgtg ccatctgcat ctggtatctg gtctgaagggt gcgtggatac 1080
cctctgtgcc cgtccagaag ttctctactg aagacagaaa tgctgtcca gtcattggaag 1140
aatgattggc agttccact tctcagacca ctgaatgggt cagaacaact actgggtgac 1200
cctaaggat tcttcagcag atatgtgtga aaaatggaaa gaagatgggt agaaataaac 1260
gggttttagag gaaaaaact ctcacaaaga tattataaaa agaaaagagc tttattattg 1320
cagcaagcatt caaccagaat gcacaccaca ggcagtctgc taaggagtg tgcagacagg 1380
aggagtgtcg ccttttatgt gagccagtag ataaggatgc tgtgcgtgtt tttagtaact 1440
gggtcttcagc ttgacagcac catttatcac atggtttaac ctaaattcat ctggcgaatg 1500
aggctgtcac gtacttcctg attagcttta tctgaaatga gacaagcttc acatgttcac 1560
ggcaggagggt aatcctgctg cttagagaac aggggtccatc caagccaggc tccttctccc 1620
accaacacgg gtggttgaag agctatctct ccctgggtgtg tgtgtttcag agatggctcc 1680
cagggtttttg gtttggtttg aattgggttt tggttttctt actctagccc agactagctt 1740
gggaattctct ggaaagctgc aacggggagc tcaggttcag tgagagatcc tgtctcaaaa 1800
cagcagggtga gaagtgttg aggaagacac ccagtggtta acctctgacc tccatatgtg 1860
catgcatgga cagcatgga tacacatata cacacacaca cacacacaca cacacacaca 1920
cacacacaca cacacacaaa accagaaaga atgaacgccc ccctcccagc ttgtttacag 1980
tagatacaga gcactcgtaa aacatggggt gtaaaactgaa tgctgagagt aacttagatg 2040
agtaattaag gaaggaagag gaaagaaacc aggaaccga gagcaagtga ctggaagatc 2100
gttaggcaat ctccacacc tgctcgttga agttggaatg ctttcttctt ctgcctcttg 2160
aagttcttta gaagtgttag gatttcacaa ttagtctgtg gtggtttcaa tatgtttcac 2220
ccgtggtaag tggcactatt aggaacgtg tccttggtga aggaagggtg tcaactgcata 2280
ggcgggcttt gaggtgtctt ccagtgtca agctcctccc agtgcaagag aggcagacac 2340
ctgttgctg cagaagacag tctcctgtg cctttgaatc aagatgtaga actcaagccc 2400
catgtctgcc tgaacctctg aaactgtaag ccagcccaa ttaaatgttt tctttcacia 2460
gagttgcctt ggtcatggtg tctgttcaca gcaataaaac cctaactaag acagtcttaa 2520
atcaatgaaa agaccttta ttattcattg aacaaacacc attttcttgt atcaagttgg 2580

cagtgactag taagcaacta tagttctgca ccagggacct ttttggagaa atataccgat 2640
 ccaagcatgt tggcatctag attccaaagc caagacacct gccacacct tccatgcctt 2700
 gggttcctgg cagggcatct ggcttcgggg atgtgtattc caggcaccca ctggaatgca 2760
 tggaacaat taaaatagca tcatagaaga cattgcaatc ctagggagaa actataccaa 2820
 aactcagaac tatacctggt taagtgtaga aaagacgaaa ggaataaaac caggaatatt 2880
 ttaaaatatt tttattgagc tcatgtgcat gggatatttg cctgaaagta tgtctgtgta 2940
 ccacatgcat ggctggctcc tgcagaggcc aaaagagagc atcagatctc ctagagctgg 3000
 agtttcagaa gtttgtgagc taccacatgg gtgctggaaa caaaaccag gacatctgga 3060
 agagcagcca gtgttcttaa ctactgagcc atcactcagg tcccacatg aatgtttttc 3120
 tttattcttc tctatatatt ctaatgtttt tattggaaat atacaacttt tgccacacat 3180
 aacaaatgac caaagaaatg aggtgagagg ggcagctgtt caaatgctgc ctgggaaggc 3240
 ttggccagcc ctggcttggc tgcccctggc tcagctggcc ctgacttggc tgtcccgtg 3300
 ccagctgtca tctactgctt cataataagc tgcactttgg gctgaagggg tggctcagcc 3360
 tttaaaggct aggtcataa ccaaagtaag ttgcatitta tttgactag gttgaagggg 3420
 gatctgaaac ttgctgtcaa tgttataaaa cattttatct tcaaatttgg tataggggtc 3480
 atagaccaa ggttctataa accccagaac agcaccactc cctagaaata agcaccata 3540
 caagagccta tgggacactt tatagccaaa caaaaagcta tgtttgaaac ttcctttaca 3600
 agggcctgag tcccatcat aagggaagga gcccacttc gtaataaac cccactggtg 3660
 acatttgaag gggacacatt caaactgtaa caccatctta tatcatttgc acattagggg 3720
 caaactgtgc cacgttgtca tttctaagaa gacagaagt gtcaagcctg tgctttgagc 3780
 cacaagtgtg acaacctact ttcaggcaag tgcctactc cctaagactc taccccaata 3840
 ggcttgggt ctggaatgtg tttaacacag atgcaggctt ctgccttagt gcaggcttga 3900
 gttctcatgt cctctctct ttagctttcc gtctcaaggc gcctctcctt agcagaaaaa 3960
 atcagaggca taaagcatac atcaggggga agccagagtt ttcagaggga gttttgtgat 4020
 ggcttttca gagcattctt gtcaagacta gtttgctcg ttctctttat taaatgaaag 4080
 aaaaataatg cagtgttgca aattagcttt ggtaatggct ccaaccattg tcaggttcac 4140
 agtctcattc cgccattcaa aacaacaaac ccaccacact ctctatgcag tgccgtaact 4200
 cagaacagcc accaaacagc agaaagaggc tccccgactc ctctcagcct tgccataaac 4260
 togccggcca catgcttatt ttaaattatt taaattatgt cgtttctccc aacaatgacc 4320
 tccaagtgc ttggttgaca ggcttatacc attaagccga ggcttgcata gcaacgataa 4380
 ccaggtaggc tattattata accaggtagc tgccgagcta ctggtcggtc cccttttgtc 4440
 tctagaaacc tctcaacccc caccacaaaa agcttttatt gccacttcct agtgggtaga 4500
 gagcagtcag ccaatagata tttgattctt tgaggaaaaa gctgagtttt gatgtctttt 4560

aatcaagcct ttcagagtcc ctctgtgggg gaggccaggt ggaagcgggg tgggaagctg 4620
gtcccttacc taagctaatac tagacaccct cccactcctc ccctgccctc ttgacagatg 4680
cagtcacctc gatcacaaatg agtattctct gaggcaggaa ggcaaggctc tgggaagatgg 4740
tcaatgcctt cattaagaac ccagagtaaa ggtcaagcag acaccagcac cgctgaaatc 4800
taatttcact gtaattgaat catctcagcc aaaggctgta tttccagcc ctctcgtggc 4860
ctcttcccca acaactgtca acaactgtgt gagcctaccc atgtatgcgc gctcacacac 4920
acacacacac acacacacac acacacacac aggggtggggg gacacaatga ttacacaaga 4980
gtacttaata aacaactata attctcctgg ctcgatagat tccttaccac cctctcctcc 5040
tggatccgga tcctaatact ggatacaaat atttaatcca aaccaatct tgtgtctgtt 5100
aatgatcttc agtgtctcgc cctcagcaag aggacaggat attatgtttt ccctgtgatt 5160
tatgacctct tctgtctcag tatcggcagc aatttattta catggctttg gagtgtgtta 5220
tatgtgtagt atggacatga ggggtcatgt caacctatgt gtggaggcca gaggtcaatg 5280
tcattgtctc cccaatcact gccagtggt ccttgattc caaactcagg tcctcacgct 5340
gtgggaactga gccagtgccc cagctcctaa cctcccctg ttttaaaaag gtctcattat 5400
gttgcccagg tcagccttga acttgagagt ctctgactg caggctttca cctgtccaag 5460
gtcagcaggca tcttgaacaa gaacatcatt tcctttaagc tgtttcaggc tgtgtttggt 5520
gggagctgtt aaatgcagtg ctttttttcc tttggacaca ataaaagaaa aaagtgatta 5580
taatgagttg gtgtgtgtgt gcgagtctac aatcctagaa ctcaggagat tgagggagaa 5640
gcattgctct gagtttgagg tcagcttaaa ttacttagta ggaacaccag gccaaattgg 5700
gctatgggat tgtctccaaa gataaagaaa aaagggaagg agagaaaaga aaaagaaagg 5760
aaagaagggg aaaagaagga atcagcagag aataaataag tcaacatgca atggccaata 5820
tactttctag gcctctaatt cttttatagt ttgtgggaaa atgtcgaaaa tcttcgttac 5880
caatttcttg ttaccaaagt tcaacgatgg cttcctcgtc ccgttaggta acctttcatt 5940
ttctcaacta cccattatgt aacgggagca ttgggtactg gatcagtctt ccattaaaga 6000
tgatttttat agttgctgag cgtcgtcagg gagtgctgac actgggggag gtttaaacag 6060
atacaagcat ttaagccagt ccggagcggg gactcatccc cccccacccc ccccccccg 6120
cgagagacgc ggcgcggcca ttggtgagca tcacgccccg cccctcgccc cgctagtctc 6180
ccgcctgccc cgcccctttc cactcccggc tcccccgctg tgcggatca gcagaccgat 6240
tctgggcgct gcgtcgcac ggtggcaggt aagcgggctg ctgaagccag gccttggcga 6300
gcactcagcc ttccgtcgtc aagctcggct cactgcgcct ctgggggcct tgaggccacg 6360
gggactagga ctgggactgg gactggggct gagtctggct gggaggtgac tgtacacccc 6420
ctgctgcgcg actcctggag gaaccgaatc ccagggcagc caggccggga gccagccttt 6480

0303.ST25

ccttcccgag ccagattcac agctcagcat cgctggggat gggggtggca tcttttgact 6540
 gtccttggct gttttcttct ctctttgtag tagctacagc gaacataatt ttacctcggt 6600
 attccaccac agtcattact cccttgacac gtttcattct caacgtcgcc gtgcgccttc 6660
 actgccctgt ctaggcgttt tcatgattgt ctattttctt gtactttgaa taccgtgggt 6720
 taatagcagt tgcgggtgcg cagaattctc catttcctta agagaaactc ctgggagaat 6780
 gggactaaag acgtgcaaatt ttaattatat cgcaaacagg aatcaaaatt ttgcattaaa 6840
 atgccaacaa tcttgaaaaa ttaactattc aatgaagaaa aggaactact ttacctacac 6900
 acacatccga gagcttcgag gaggcgaagg aaatagaaaag ctaagggatg atttgggttg 6960
 tatttgaatc tgacacaagc ttcccatatt atttatagca gggactaaac gatgagtcac 7020
 tttctgaata agatgcaaatt taaagcaagt ttgtttgttg tctttacatc tattaataag 7080
 acagagacaa tggcaacagc aaccctaacc tagaggttgc ctgaaagtgt cagggttggg 7140
 caacaagtggc cctgcttaag ggctagaaaag attgctttac aaccaacaat catgacttga 7200
 cattgcctgg ggttcctttt gtctattcct tttttaaag actagtgttt attttatgtg 7260
 catgagtgtt ttgcatccac attcgctgt atacacacct ggttctgtgg aggtcaggag 7320
 aggggtgctgg atgccttggc actagagcct tggatggtta tgtgagcccc tgccacaggg 7380
 gagctcagaa ccaaatccag gtccctctga agagcaacca gagctcttaa aacttctaag 7440
 tatccctcca tcccctttcc atcatatttg gaaaggagaa aactgctacc catgcctggc 7500
 atttatttca gagattaact gtctgtgtaa aacttgacat tgaaagtga ctattctgtt 7560
 tcccattcat acttagttga gactactgta agtcagttag ggcttttttt gtttggttcc 7620
 ttggttagtt tggagtgtgt ttgtgagctc attaacaggc tttcaatatg tagctggaat 7680
 ttgctgtgta gaccagacag gcctcaaatt tgtggcaatc ctccctgcat cttcccagaa 7740
 tgccctggta caggcataaa ccaccgtgcc cagcagtaaa acaatctggt gaggtattat 7800
 tagtcgtgtg ctgtgaccca gaaacccac tcttggaat ttactgggaa ggaacaaaca 7860
 aagggttagg ggagccatat ggctgcagt tagagaaaat tagatccaac tgaaaaatca 7920
 acctaaaggt gtaaaagcca agcagttaag aaactgacaa gctcatgatg gaagccgagg 7980
 ccatcgtaga cactcttcat tttaggcccc acgtatcact ggggacaact gagagtcaaa 8040
 gtacaggtaa ggagaccaag gcttttcagg actcaggctg tctcagtga aagcccagaa 8100
 gagcagtaat tgaaagagct cagacgatgt gtctgatctc ctctgtttgt ttgttgctgt 8160
 attatttcca ctaacttatt tgggaggaaa aaaaacagtt cacaggcttc ttttcttgaa 8220
 atactgggga ttgctgggat cgaaccagg gataggtttt tagtttctaa aataacatag 8280
 atcatgccct gtttgctttt tggaatatgt ttgcgctgcc cttattttca tgttcaaata 8340
 ctgctccatt ttgcgtgact ctttagtatt ggtttgatga tttgcatatt agattagatt 8400
 gtatttcagt tctcagactt atttatcaat tctagttttc tctttttgtt gttttaaagg 8460

actcctgagt atatttcaga actgaaccat ttcaaccgag ctgaagcatt ctgccttcct 8520
 agtggtagct cgactatcag gtgaactttg aaccaggatg gctgagcccc gccaggagtt 8580
 cgaagtgatg gaagatcacg ctggggacgta cgggttgggg gacaggaaag atcagggggg 8640
 ctacaccatg caccaagacc aagaggggtga cacggacgct ggctgaaag ctgaagaagc 8700
 aggcattgga gacaccccc gcttggaaga cgaagctgct ggtcacgtga cccaagctcg 8760
 catggtcagt aaaagcaaag acgggactgg aagcgtatgac aaaaaagcca agggggctga 8820
 tggtaaaacg aagatcgcca caccgcgggg agcagcccct ccaggccaga agggccaggc 8880
 caacgccacc aggattccag caaaaacccc gcccgctcca aagacaccac ccagctctgg 8940
 tgaacctcca aaatcagggg atcgacgagg ctacagcagc cccggtccc caggcactcc 9000
 cggcagccgc tcccgacccc cgtcccttcc aacccacccc acccgggagc ccaagaaggt 9060
 cggcagtggtc cgtactccac ccaagtcgcc gtcttccgcc aagagccgcc tgcagacagc 9120
 ccccgtagcc atgccagacc tgaagaatgt caagtccaag atcggtcca ctgagaacct 9180
 cgaagcaccag ccgggaggcg ggaaggtgca gataattaat aagaagctgg atcttagcaa 9240
 cgtccagtcc aagtgtggct caaaggataa tatcaaacac gtcccgggag gcggcagtgt 9300
 gcaaatagtc tacaacaccag ttgacctgag caaggtagcc tccaagtgtg gctcattagg 9360
 caacatccat cataaaccag gaggtggcca ggtggaagta aaatctgaga agcttgactt 9420
 caaggacaga gtccagtcca agattgggtc cctggacaat atcacccacg tccctggcgg 9480
 aggaaataaa aagattgaaa ccacaaagct gaccttccgc gagaacgcca aagccaagac 9540
 agaccacggg gcggagatcg tgtacaagtc gccagtgggt tctggggaca cgtctccacg 9600
 gcatctcagc aatgtctcct ccacggcag catcgacatg gtagactcgc ccagctcgc 9660
 cacgctagct gacgaggtgt ctgcctccct ggccaagcag ggtttgtgat caggccctg 9720
 gggcgggtaa taattgtgga gaggagagaa tgagagagtg tggaaaaaaa aagaataatg 9780
 acccggtccc cgcctctcgc cccagctgc tctcgcagt tcgggaattc ggatccagat 9840
 cttattaaag cagaacttgt ttattgcagc ttataatggt tacaataaaa gcaatagcat 9900
 cacaaatttc acaaataaag ctttttttc actgcattct agttgtggtt tgtccaaact 9960
 catcaatgta tcttatcatg tctggtcgac 9990